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Critically Appraised Topic / Évaluation critique

Your Patient Has Symptomatic Fibroids and Would Like to Have a Baby: What Treatment Should You Advise?

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The Clinical Problem

A 30-year-old woman with irregular menses is planning a pregnancy. Ultrasound shows a 6-cm intramural fibroid. She asks whether myomectomy or uterine artery embolization (UAE) is the treatment of choice. Friends of hers have had UAE, and she has looked at the Society of Interventional Radiology (SIR) Web site. What would you advise? Many women present in this fashion to general practitioners or gynaecologists or directly to interventional radiologists. Expert opinions differ. The SIR states that there have been numerous reports of pregnancies after UAE. The British Society of Interventional Radiology [1] is more cautious and states that there is insufficient data at this time to ensure that UAE is safe for women who may wish to become pregnant in the future, because few studies have assessed the effect of embolization on pregnancy-related outcomes. As radiologists, we wanted to establish the best current evidence.

The McMaster/Oxford ''bottom-up'' evidence based practice methodology was applied to this question. Initially, a focused clinical question or Patient Population, Intervention, Comparison, Outcomes (PICO) question was designed, as previously described by Staunton [2]: ''In women with symptomatic fibroids desiring future fertility, is uterine artery embolization or myomectomy associated with superior reproductive results?''

The Evidence

Our search strategy involved a ''top-down'' trip through the ''evidence pyramid'' hierarchy [3]. Information Systems, synopses, syntheses, and primary studies were reviewed. Only studies in which researchers compared reproductive outcomes after UAE and after myomectomy were eligible for inclusion. Expert Consensus Guidelines (level 5 evidence), review articles, abstracts, editorials, case reports, and foreign language literature were excluded. A search of Medline by using PubMed ''Clinical Queries'' retrieved 30 systematic reviews (SR). The abstracts of these were analysed according to the above criteria. This left 3 relevant, accessible SRs [4–6].

A PubMed PICO search retrieved 10 abstracts, which were reviewed online. One randomized controlled trial was identified [7]. Reference lists of retrieved articles were also hand searched. This revealed a systematic literature review and meta-analysis of 8 studies performed by Homer et al [8]. The best current evidence is categorized as level 1b and is derived from a randomized control trial by Mara et al [7], who compared reproductive results after UAE and after myomectomy. This study was reviewed by using explicit evidence-based medicine (EBM) criteria [9], and the methodology is satisfactory. Mara et al [7] randomized 121 women <40 years of age, with symptomatic, >4-cm intramural fibroids, and who desired future pregnancy to receive UAE or myomectomy. The purpose of the study was to compare the efficacy and safety of the 2 procedures and their impact on patient fertility.

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Inclusion criteria included ultrasound verified intramural fibroid at least 4 cm (if multiple, then at least 1 >4 cm), age <40 years old, serum follicle stimulating hormone (FSH) <30 IU/L, and planned pregnancy. Exclusion criteria included nonintramural main fibroid, dominant fibroid >12 cm on ultrasound or uterus enlarged to a size that corresponded to >4 months of pregnancy on bimanual pelvic examination, previous myomectomy, UAE, or hormonal therapy of fibroids, suspected uterine sarcoma or diffuse adenomyosis, and serious disease contraindicating pregnancy.

Results

Fifty-eight embolizations and 63 myomectomies (42 laparoscopic, 21 open) were performed. Forty women, after myomectomy, and 26, after UAE, have tried to conceive (Table 1). The average length of hospitalization and postoperative recovery were significantly longer, and the mean serum C-reactive protein (CRP) concentration was significantly higher in the group of women treated by surgery.

The next best current evidence is level 3a [8], a systematic review and meta-analysis of 8 studies to investigate how UAE might alter the risk profile for pregnancies complicated by fibroids. In all, 227 women with completed pregnancies after UAE for symptomatic fibroids were identified. The main outcome measures included rates of spontaneous abortion, preterm delivery, malpresentation, intrauterine growth restriction, caesarean delivery, and postpartum hemorrhage. First trimester miscarriage rates were higher in UAE pregnancies (35.2%) compared with fibroid-containing pregnancies matched for age and fibroid location (16.5%) (odds ratio [OR], 2.8; confidence interval [CI], 2.0–3.8). This result is statistically significant [10]. After the first trimester, there was no increased risk for preterm delivery, malpresentation, or intrauterine growth restriction when compared with women with untreated fibroids. After UAE, patients were at increased risk for caesarean section (66% vs 48.5%; OR, 2.1 [95% CI, 1.4–2.9] and postpartum hemorrhage (13.9% vs 2.5%; OR, 6.4 [95% CI, 3.5–11.7]).

Table 1
Reproductive outcomes

	After UAE	After myomectomy	Comparative statistics (95% confidence intervals)
Pregnancy rate	50% ($P < .05$)	78% ($P < .05$)	
Relative risk (not to get pregnant)			2.5 (1.20–5.18)
Absolute risk increase			0.3 (0.07–0.5)
No. needed to harm			3.3 (1.9–14)
Delivery rate	19% ($P < .05$)	48% ($P < .05$)	
Relative risk (not to deliver)			1.54 (1.08–2.18)
Absolute risk increase			0.28 (0.07–0.5)
No. needed to harm			3.5 (2–15.1)
Spontaneous abortion	64% ($P < .05$)	23% ($P < .05$)	
Rate			
Relative risk (to abort)			2.31 (0.93–5.72)
Absolute risk increase			0.2 (−0.02 to 0.4)[a]
No. needed to harm			5.1 (−56.9 to 2.4)[a]

[a] Note that, when confidence intervals cross zero, the result is not statistically significant [10].

Clinical Applicability

There is good evidence that, for a specific subset of patients, myomectomy achieves a higher fertility rate than UAE (ie, <40 years old with symptomatic intramural fibroids between 4 and 12 cm in diameter, and FSH <30 IU/L and no previous myomectomy embolization, diffuse adenomyosis, or serious disease contraindicating pregnancy). There is also evidence that UAE likely increases the risk of first trimester spontaneous abortion [7,8]. Further trials are needed and at least one is in progress [11].

Comments

Current barriers to change include the attractiveness to patients of the minimally invasive UAE procedure, the large financial incentives associated with all aspects of the UAE industry, and investigator bias. However, in women who wish to preserve maximal fertility and reduce the potential risk of miscarriage, it remains prudent to recommend myomectomy if technically feasible. In women who have completed their families, or for whom myomectomy is not possible, or are less concerned by fertility preservation, UAE can be safely recommended. We did not anticipate this result but consider that it has clinically significant implications for practice, pending the completion of larger trials.

Key Points

- Although UAE is now a well-established therapeutic procedure for patients with symptomatic uterine fibroids, its use in women with reproductive plans remains controversial.
- Myomectomy and embolization are comparable as far as technical success rate, frequency of early and late complications, and symptomatic effectiveness are concerned.
- UAE is a less-invasive approach than myomectomy (shorter hospital stay and recovery period, lower acute phase markers).
- In lieu of further evidence, a cautious approach in recommending UAE to women desirous of pregnancy is justified.

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